

tunities may be sub-optimal. I suspect the larvae of the species in question cannot survive in June when temperatures in the shade regularly exceeds 40° Centigrade. The site determinants are obviously the simultaneous presence of shade and water, as well as perhaps nectar sources. Very few Danaines were seen in other parts of the park, except in conjunction with similar, but smaller, water seepages. Doubtless the population of such a site builds up gradually though the recruitment of passing butterflies and with very little loss of the existing stock. It would be extremely inte-

resting if a resident of the National Park could monitor the build up and variation of such a roost during the period of an entire year. Probably the roost will dissolve with the onset of the monsoon in late June.

Towards nightfall the butterflies perch on naked twigs of understory bushes, usually about a metre above the ground. They invariably settle in little clusters of two to six specimens, a trait well known in the subfamily, probably related to the fact that the species are aposematic.

C/o. DANIDA,
7 GOLF LINKS,
NEW DELHI 110 003,
July 4, 1985.

TORBEN B. LARSEN¹

REFERENCE

ACKERY, P. & VANE-WRIGHT, R. (1984): Milkweed Butterflies. British Museum (Natural History), London.

¹ Present address: 29C Snoghoj alle, DK 2770, Kastrup, Denmark.

25. *AGERATUM CONYZOIDES* (COMPOSITAE) INDIRECTLY
CONFIRMED AS A SOURCE FOR PYRROLIZIDINE
ALKALOIDS

In their excellent review of Danaine butterflies, Ackery & Vane-Wright (1984: Table 2) include the pan-tropical weed *Ageratum conyzoides* as a probable source of pyrrolizidine alkaloids. These compounds are an essential feature in the life of adult Danaine butterflies (in India the genera *Danaus*, *Euploea*, *Parantica*, *Tirumala* and perhaps *Idea*), since the pheromones necessary for successful courtship will not be developed in their absence. In more purple prose male Danaines cannot activate their love dust before ingesting pyrrolizidine

alkaloids from a suitable source. However, the plant in question has not been biochemically assayed in this respect.

During intermittent butterfly studies in India, and especially New Delhi, between April 1984 and June 1985, I have observed large numbers of male Danaine butterflies coming to the blue flowers of *Ageratum conyzoides*, a weed associated with moisture. Although the flowers appear most suitable as an ordinary nectar source, Danaine specimens collected from the flower are almost invariably male. The only

MISCELLANEOUS NOTES

common Danaine in New Delhi is *Danaus chrysippus* Linné, the Plain Tiger, which on a number of occasions I have sampled on *Ageratum conyzoides*:

TABLE 1

RANDOM SAMPLES OF *Danaus chrysippus* COLLECTED FROM THE FLOWERS OF *Ageratum conyzoides* IN NEW DELHI

Place and date	males	females
Govt. Sunder Nursery, 27.x.1984	100+	0
Govt. Sunder Nursery, 29.x.1984	38	1
Govt. Sunder Nursery, 11.x.1984	52	0
Hauz Khas Rose Gdn., 26.iii.1985	17	0
Hauz Khas Rose Gdn., 10.iv.1985	123	2
Total	330+	3

Both sexes of this butterfly normally come to flowers. I have observed smaller numbers of *Danaus genutia* Cramer, *Tirumala limniace* Cramer and *Euploea core* Cramer on the same plant, nearly all males.

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* [See also "Danaid butterflies attracted to *Heliotropium indicum* (Boraginaceae), an alkaloid containing plant." By S. R. Amladi, published in *J. Bombay nat. Hist. Soc.* 72(2): 585-587 — Editors.]

26. OCCURRENCE OF *PSYCHE* SCHRANK (LEPIDOPTERA: PSYCHIDAE) ON LITCHI (*LITCHI CHINENSIS* SON.) IN THE PLAINS OF U.P.

Psyche vitrea Hampson was reported as a pest of mango in the plains of India (Lefroy 1909). We have observed the incidence of

However, in addition to coming to the flowers of the plant, large assemblages of male Danaids may also be found on withered patches of the plant, such as where a sewage drain has dried out. When clumps of *Ageratum* have been mown down, Danaines will be attracted to the cut stems. Sometimes they are very partial to upturned roots when an area with *Ageratum* has been plowed. The strongly sex-skewed observations and the fact that males are also attracted to dried plants leave little doubt that the plant is a pyrrolizidine alkaloid source. My observations in Delhi indicate that it is crucial for the Danaine populations of that city, and especially to *Danaus chrysippus*, though there are other sources available in the form of *Crotalaria* and *Heliotropium**. Both *Danaus chrysippus* and *Ageratum conyzoides* are widespread, adventive, almost synanthropic species. In the Old World their area of distribution is practically the same and this is probably not by chance.

Psyche sp. on the leaves and young fruits of Litchi at the litchi block of the Horticultural Research Institute, Saharanpur (U.P.) during